

# BENTHIC HABITAT CLASSIFICATION USING OBJECT BASED IMAGE APPROACH

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## Introduction

### Benthic Habitat

Physically distinct areas of seafloor where particular groups of plants and animals normally live and adapt.

### Benthic Habitat Map

- The availability of benthic habitat information became very important for coastal marine resource assessments and ecological analysis.
- Spatial and temporal information of objects distribution within coastal area was necessarily required.
- **It could only be effectively presented in benthic habitat map.**
- Satellite imagery was the most typically used to produce benthic habitat maps for its excellence in global mapping

## Objective

- To investigate the ability of SPOT-7 image on identifying benthic habitat biodiversity around study area using object-based image analysis.
- To compare two classifier algorithms in OBIA; Bayes and KNN.

## Study Area

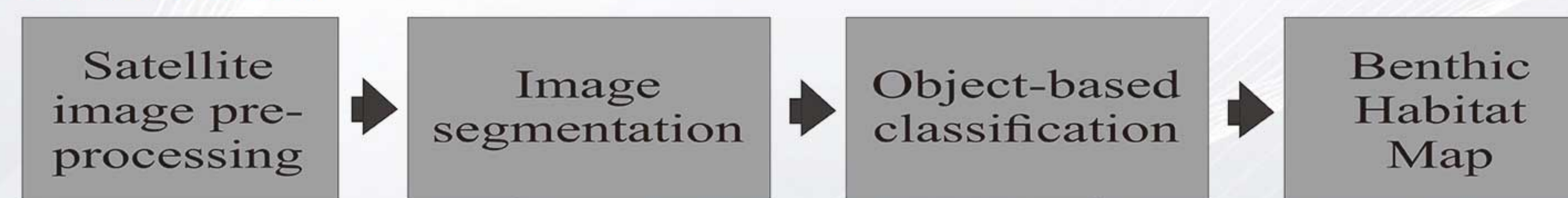
The study area focused on Kelapa-Harapan Island, Taman Nasional Kepulauan Seribu.



Coordinate system : UTM  
Projection system : UTM  
Zone: 48 S, Spheroid: WGS 1984



## Procedure



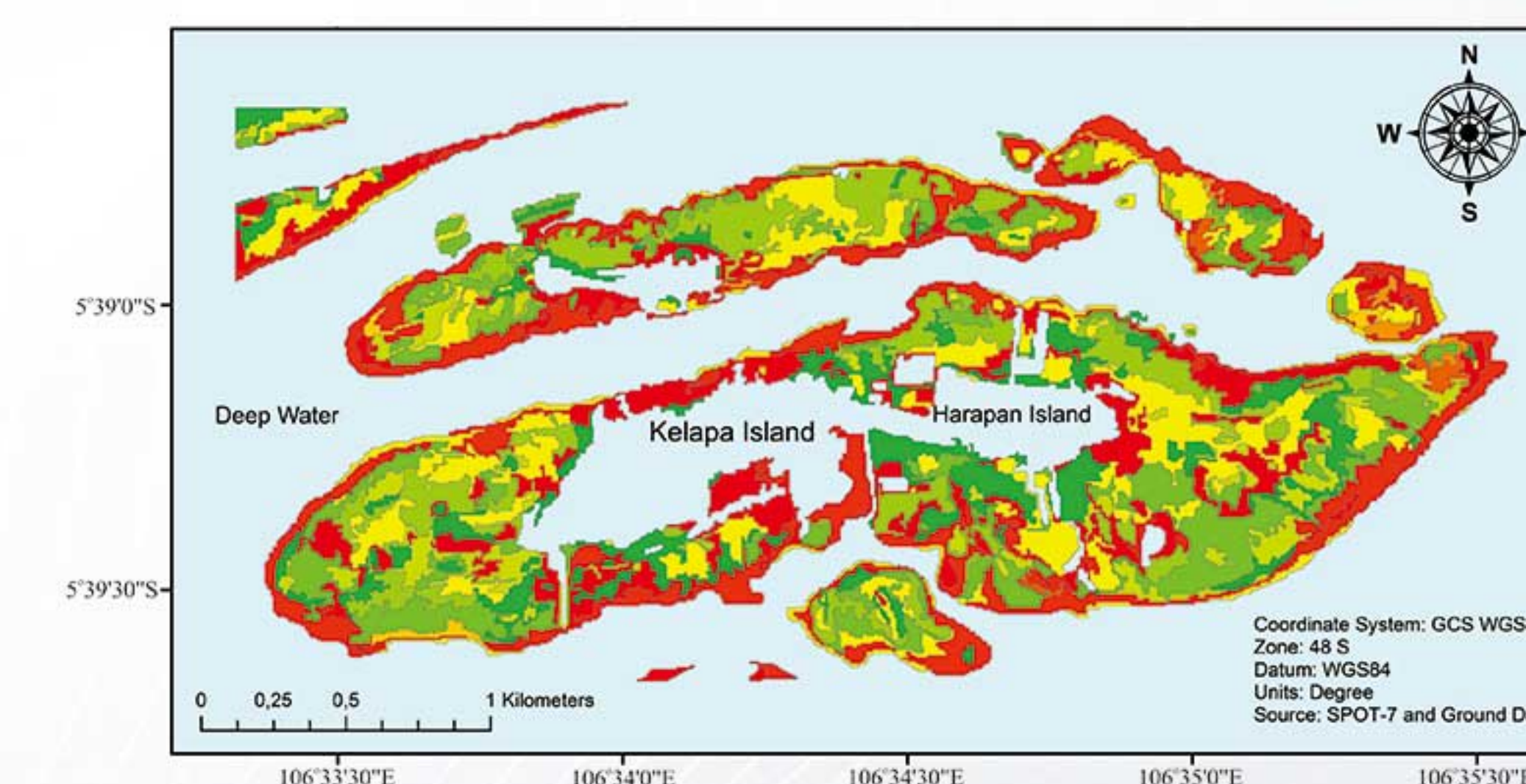
- Level 1 : Reef Level
- Level 2 : Geomorphic
- Level 3 : Benthic Habitat

## Result & Conclusion

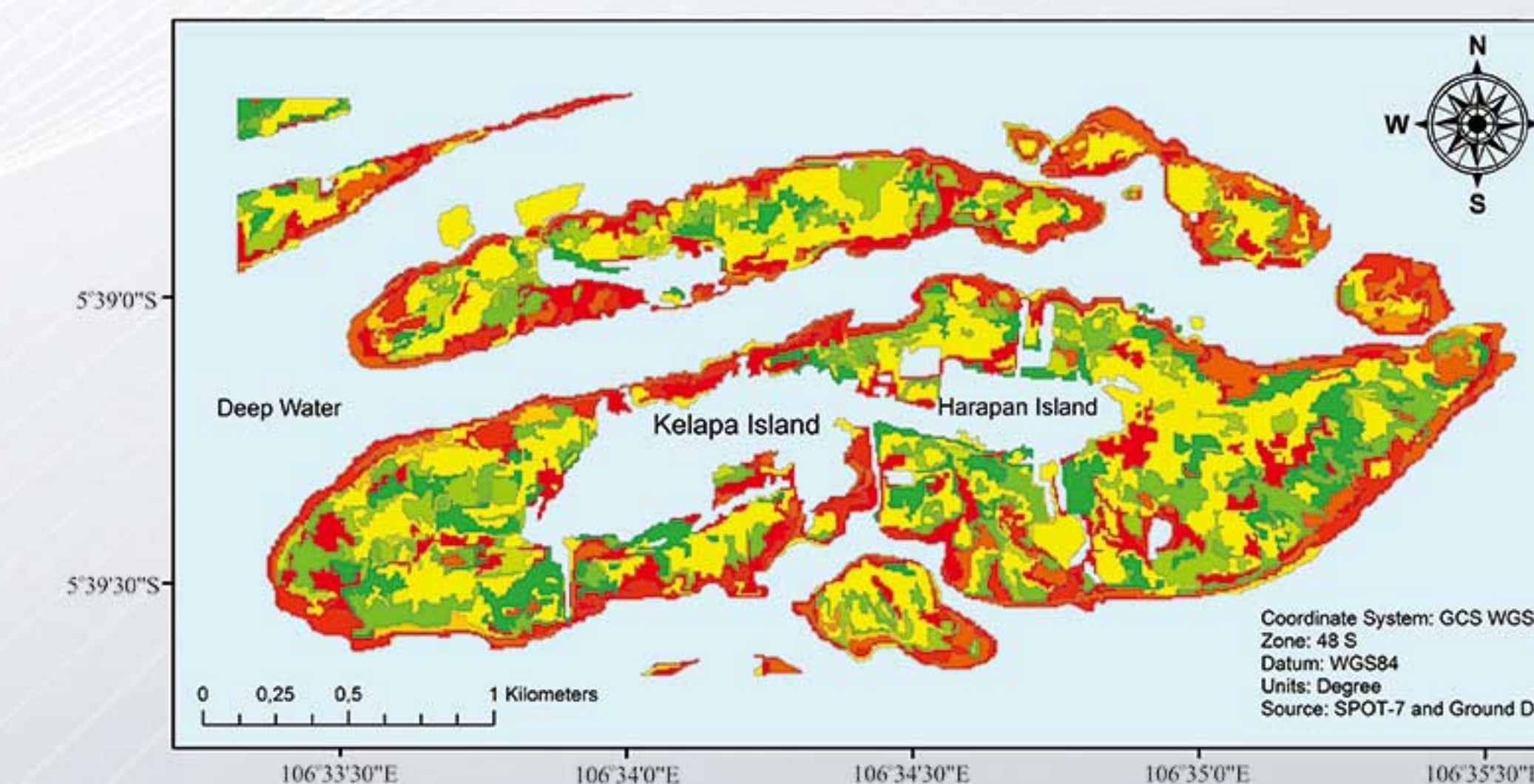
- The SPOT-7 image was quite reliable for deriving a benthic habitat map.
- The accuracy level was higher for the Bayes classifier (77.88 for C1 and 81.42% for C2) than for the KNN classifier (76.99% for C1 and 80.53% for C2), respectively.

## Benthic Habitat Classification

### Bayes Classifier



### KNN Classifier



## LEGEND

	Sand Seagrass		Rubble Algae
	Sand Rubble Algae		Rubble
	Sand Rubble		Live Coral Rubble
	Seagrass		Live Coral
	Sand Coral		Death Coral Algae
	Sand		